

National Aeronautics and  
Space Administration  
**Lyndon B. Johnson Space Center**  
2101 NASA Parkway  
Houston, Texas 77058-3696



September 22, 2006

Reply to Attn of :

ZA/NEPA-06-01

TO: Federal, State and Local Agencies, and Other Interested Parties

FROM: ZA/Environmental Manager, Constellation Program, NASA-JSC

SUBJECT: Notice of Intent (NOI) to Prepare a Programmatic Environmental Impact Statement (EIS) and to Conduct Scoping for the Constellation Program

In compliance with the NASA policy and procedures (14 CFR Part 1216, subpart 1216.3) for implementing the National Environmental Policy Act, as amended (42 U.S.C. 4321 et seq.), this NOI to prepare a Programmatic EIS and to conduct scoping for NASA's Constellation Program is being distributed to Federal, State, and local agencies; interested persons and organizations; as well as selected repositories.

A handwritten signature in black ink that reads "Jennifer Rhatigan".

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Enclosure:  
Notice of Intent



# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Notice (06-074)

National Environmental Policy Act; Constellation Program

AGENCY: National Aeronautics and Space Administration (NASA).

ACTION: Notice of intent to prepare a Programmatic Environmental Impact Statement (EIS) and to conduct scoping for the Constellation Program

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA) (42 U.S.C. 4321 *et. seq.*), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), NASA's NEPA policy and procedures (14 CFR Part 1216, subpart 1216.3), and Executive Order 12114, NASA intends to prepare a Programmatic EIS for the implementation of the Constellation Program. The Constellation Program encompasses NASA's initial efforts to extend a human presence throughout the Solar System as President George W. Bush outlined in his *Vision for Space Exploration*. Major elements of the Constellation Program are currently focused on providing the capability to transport humans and cargo first to the International Space Station (ISS), and then at a later date to the Moon in support of lunar exploration missions. These activities would provide the framework for future human exploration of the Moon, Mars and other destinations in the Solar System in the decades to come.

The design, development, test, and production of the vehicles needed to transport humans and cargo, the design and development of the infrastructure necessary to support their use in missions, and the early mission applications of these vehicles form the basis of the Proposed Action and alternatives to be analyzed in the Constellation Programmatic



EIS. The No Action Alternative is to not implement the Constellation Program. Present plans call for operational missions to the ISS no later than 2014 and human missions to the Moon no later than 2020. Launches are proposed to take place from John F. Kennedy Space Center (KSC), Florida. Analysis of potential landing areas for returning spacecraft is at a very early stage.

NASA will hold public scoping meetings as part of the NEPA process associated with development of the Programmatic EIS. Public meeting locations and dates identified at this time are provided under SUPPLEMENTARY INFORMATION below.

DATES: Interested parties are invited to submit comments on environmental issues and concerns, preferably in writing, on or before November 13, 2006, to assure full consideration during the scoping process.

ADDRESSES: Comments submitted by mail should be addressed to ZA/Environmental Manager, Constellation Program, NASA Lyndon B. Johnson Space Center, 2101 NASA Parkway, Houston, Texas 77058. Comments may be submitted via e-mail to [nasa-cxeis@mail.nasa.gov](mailto:nasa-cxeis@mail.nasa.gov). Comments may also be submitted via telephone at (toll free) 1-866-662-7243.

FOR FURTHER INFORMATION CONTACT: Constellation Programmatic EIS by email addressed to [nasa-cxeis@mail.nasa.gov](mailto:nasa-cxeis@mail.nasa.gov), by telephone at (toll free) 1-866-662-7243, or by mail addressed to ZA/Environmental Manager, Constellation Program, NASA Lyndon B. Johnson Space Center, 2101 NASA Parkway, Houston, Texas 77058.

Additional Constellation Program information may also be found on the internet at NASA web sites including <http://www.nasa.gov/constellation>. Information specific to



the Constellation Program NEPA process may be found at

[http://www.nasa.gov/mission\\_pages/exploration/main/eis.html](http://www.nasa.gov/mission_pages/exploration/main/eis.html).

SUPPLEMENTARY INFORMATION: On January 14, 2004, President George W. Bush announced a new *Vision for Space Exploration* setting the long-term goals and objectives for the Nation's space exploration efforts. The underlying objective of the President's vision is to advance the Nation's scientific, security, and economic interests through a robust space exploration program. The President identified three goals as needed to meet this objective. First, the Nation will fulfill its obligation to support the ISS. Secondly, a new spacecraft capable of transporting humans, the Crew Exploration Vehicle (CEV) (recently named "Orion" by NASA), will be developed, tested, and deployed. Finally, the Nation will undertake a human mission to the Moon by 2020.

The President tasked NASA as the lead agency in developing the plans, programs, and activities required to implement the *Vision for Space Exploration*. To achieve these goals, NASA intends to pursue the following initiatives:

- Implement a sustained and affordable human and robotic program to explore the Moon, Mars, and other destinations in the Solar System,
- Extend a human presence across the Solar System, starting with a return of humans to the Moon by 2020 in preparation for human exploration of Mars and other Solar System destinations,
- Develop innovative technologies, knowledge, and infrastructures both to explore and to support decisions about the destinations for human exploration, and
- Promote international and commercial participation in this new space exploration program.



NASA has formulated a comprehensive program directed at accomplishing the key actions in pursuit of human exploration activities, the Constellation Program. The proposed framework for implementation of the Constellation Program has been established through studies addressed in NASA's *Exploration Systems Architecture Study* (ESAS) released in November of 2005. The ESAS identified the key technologies required to enable NASA to continue to support the ISS, to undertake human exploration missions to the Moon, and to prepare for human missions to Mars and ultimately to other destinations in the Solar System. The ESAS also outlined the specific actions NASA proposes to take in implementing the President's *Vision for Space Exploration*.

The ESAS recommended the development of two Space Shuttle-derived launch vehicles capable of supporting Orion operations to the ISS, the Moon, and Mars. The Proposed Action would use a Space Shuttle-derived set of launch vehicles. The first of these vehicles, the Crew Launch Vehicle (recently designated by NASA as "Ares-I") would carry human explorers and/or cargo aboard Orion to low-Earth orbit. Ares-I would be a two stage rocket configuration topped by the Orion: the first stage would be a modified version of a Space Shuttle reusable solid rocket motor, and the upper stage would use a liquid oxygen/liquid hydrogen fueled engine derived from the upper stage engine used on the Saturn V during the Apollo Program. Orion would consist of an Apollo-like capsule which includes a crew module, a service module, and a launch abort system. Orion launched aboard the Ares-I would be able to dock with the ISS. Orion would also be able to dock with the cargo launched aboard the second vehicle, the Cargo Launch Vehicle (recently designated as "Ares-V" by NASA). Ares-V would also be a two stage rocket configuration. The first stage would consist of two of the solid rocket motors used on



Ares-I and a single core liquid propulsion stage. The core propulsion stage would consist of a central booster tank, derived from the Space Shuttle external tank, which provides fuel for five liquid oxygen/liquid hydrogen fueled engines. The upper stage, called the Earth Departure Stage, would be powered by the same engine used on the upper stage of the Ares-I and would provide the capability to propel a human mission from Earth orbit to the Moon and later to Mars. Ares-V would be capable of delivering large-scale hardware and materials to Earth orbit. Items delivered could range from materials for establishing a permanent Moon base to food, fresh water, and other staples needed to extend a human presence beyond Earth orbit. It is the development and testing of these vehicles, the infrastructure necessary to support their use in missions, and the early mission applications of these vehicles that form the basis of the Proposed Action. More complete descriptions of the planned Orion, Ares-I, and Ares-V are available via the internet at [http://www.nasa.gov/mission\\_pages/exploration/spacecraft/index.html](http://www.nasa.gov/mission_pages/exploration/spacecraft/index.html).

As the Proposed Action to accomplish the President's *Vision for Space Exploration*, NASA proposes to continue planning for and to implement major elements of the Constellation Program focused on providing for transport of humans and cargo first to the ISS and then at a later date to the Moon in support of lunar exploration missions. These activities would also provide the framework for future human exploration of Mars and other destinations in the Solar System in the decades to come.

NASA's Proposed Action would consist of six major projects: Project Orion, Launch Vehicle (*i.e.*, Ares-I and Ares-V) Projects, Ground Operations Project, Mission Operations Project, Extravehicular Vehicle Activity (EVA) Project, and Advanced Projects. For Project Orion this Programmatic EIS will focus on production, flight



testing, and mission operation of Orion. For the Launch Vehicle Projects, the focus will be on design, development, production, testing (including flight tests), and mission operations of the new Ares-I and Ares-V launch vehicles. The Ground Operations Project discussion will focus on launch processing and launch operations for each of the two launch vehicles including potential launch site modifications and new construction associated with launch site modifications at KSC, recovery of Orion and her crew after missions. The Missions Operations Project discussion will focus on the infrastructure necessary to accomplish missions: astronaut and flight controller training facilities, control centers, and communication centers. The EVA Project discussion will focus on the development of spacesuits and EVA related tools and equipment. The Advanced Projects discussion will focus on the requirements and early design of future Constellation program systems. These systems would support lunar landers and surface applications as well as Mars transportation, landers, and surface operations. The EVA Project and Advanced Projects are at a very early stage of planning and development. As a result they will be discussed only generally in this Programmatic EIS, and NASA will consider the need for additional NEPA documentation as such systems are considered for implementation and more specific information becomes available.

Orion and Ares-I would be used on missions to support the ISS once the Space Shuttle has been retired. It is anticipated that they would be used to ferry human and cargo to the ISS no later than 2014 with missions continuing throughout the life of the ISS. Orion, Ares-I, and Ares-V would be used for lunar missions to be undertaken no later than 2020. The Programmatic EIS will address only the ISS support missions and early human lunar missions through the early 2020's. While additional human missions to the Moon and,



later, to Mars are envisioned for the Constellation Program, the nature and scope of these missions and resources needed to support them are speculative at this time. NASA anticipates that tiered NEPA documentation may need to be prepared for specific activities and specific missions as planning matures.

To satisfy the objective that Ares-I and Orion be able to support ISS no later than 2014, a limited number of long-lead time activities that could affect the environment need to be initiated before it is likely that the Constellation Programmatic EIS process will be completed. Such activities have been or will be the subject of separate NEPA documentation before final decisions are reached as to whether to proceed with them. These include a Finding of No Significant Impact for the Development of the Crew Exploration Vehicle signed on August 29, 2006 (published in the Federal Register on September 1, 2006 (71 FR 52169)), the proposed NASA Launch Abort System Test Program, and proposed limited new construction and modification to existing facilities to support early testing of Ares-I and Orion at KSC.

The Constellation Program is a large endeavor that would require NASA to make use of personnel and resources at several NASA locations. Under NASA's Proposed Action, Constellation Program activities would be expected to occur at the following NASA sites:

- Ames Research Center; Santa Clara County, California,
- Dryden Flight Research Center; Edwards Air Force Base, California,
- Glenn Research Center; Cleveland, Ohio,
- Goddard Space Flight Center; Greenbelt, Maryland,
- Jet Propulsion Laboratory; Pasadena, California,
- Johnson Space Center; Houston, Texas,



- Kennedy Space Center; Brevard County, Florida,
- Langley Research Center; Hampton, Virginia,
- Marshall Space Flight Center; Huntsville, Alabama,
- Michoud Assembly Facility; New Orleans, Louisiana,
- Stennis Space Center; Bay St. Louis, Mississippi, and
- White Sands Test Facility (and the U.S. Army White Sands Missile Range), New Mexico.

Development activities would also be expected to occur at contractor facilities, including, but not necessarily limited to, potential rocket motor development, manufacturing and testing at Pratt & Whitney Rocketdyne; Canoga Park, California and ATK Thiokol, Brigham City, Utah.

Alternatives to be considered in this Programmatic EIS will include, but not necessarily be limited to other launch vehicle systems, other means to support the ISS, alternative Orion landing regimes and sites, and the No Action Alternative (*i.e.*, NASA would not implement the Constellation Program).

NASA anticipates that the areas of potential environmental impact of most interest to the public would be: air quality; water quality; plant and animal life (including endangered species); noise and vibration related to, but not limited to, launch vehicle production, engine and motor tests, launch tests, and mission launches; potential impacts on cultural and historical resources at the involved NASA facilities; socioeconomic impacts associated with the potential increase and decrease of the workforce at various locations throughout the country; and sonic booms and other impacts associated with the return of Orion to Earth.



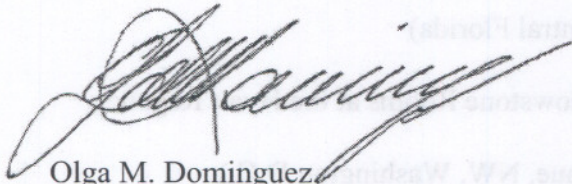
NASA also plans on holding a series of public meetings to provide information on the Constellation Programmatic EIS and to solicit public comments. The meetings that have been scheduled to date are:

- October 18, 2006, 1:00pm and 6:00pm at the Florida Solar Energy Center (1679 Clearlake Road, Cocoa, Florida - University of Central Florida)
- October 20, 2006, 1:00pm in the Everglades/Yellowstone Rooms at the Hyatt Regency Washington on Capitol Hill (400 New Jersey Avenue, NW, Washington D.C.)
- October 24, 2006, 6:00pm at the Little America Hotel (500 South Main Street, Salt Lake City, Utah)

The Programmatic EIS will analyze the potential environmental impacts associated with landing Orion at a general open ocean or terrestrial site in the Western continental U.S. However, at this time NASA is still conducting early technical analyses of the relative feasibility and desirability of returning Orion to Earth in the open ocean or at terrestrial landing sites in the Western continental U.S. As a result, the number of potential landing sites is so large that it is not practical to address specific sites during the present scoping period. However, NASA welcomes any public comments or concerns related to potential environmental impacts of ocean landings or landings in the Western continental U.S. At such time as the technical analyses of landing alternatives become more mature, NASA may reopen the public scoping period as it relates to landing sites. Alternatively, if such results are not available during the Programmatic EIS process, NASA will prepare tiered NEPA documentation that will involve a public scoping process.



Written public input on alternatives and environmental issues and concerns associated with the Constellation Program that should be addressed in the Programmatic EIS are hereby requested.



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